CLAIMS PENDING IN USSN 07/954,646

Claims 1-109: --CANCELLED--

110. A substrate with a surface comprising 10^3 or more groups of oligonucleotides with different, known sequences covalently attached to the surface in known regions, said 10^3 or more groups of oligonucleotides occupying a total area of less than 1 cm^2 on said substrate.

111. The substrate as recited in claim 110 wherein said substrate comprises 10^4 or more different groups of oligonucleotide with known sequences covalently coupled to known regions of said substrate.

112. The substrate as recited in claim 110 wherein said substrate comprises 10^5 or more different groups of oligonucleotides with known sequences in known regions.

113. The substrate as recited in claim 110 wherein said substrate comprises 10^6 or more different groups of oligonucleotides with known sequences in known regions.

114. The substrate as recited in claim 110 wherein said groups of oligonucleotides are at least 50% pure within said known regions.

115. The substrate as recited in claim 110 wherein the groups of oligonucleotides are attached to the surface by a linker.

116. --CANCELLED--

117. An array of more than 500 different groups of oligonucleotide molecules with known sequences covalently coupled to a surface of a substrate, said groups of oligonucleotide

molecules each in known regions and differing from other groups of oligonucleotide molecules in monomer sequence, each of said known regions being an area of less than about 0.01 cm^2 and each known region comprising oligonucleotides of known sequence.

118. The array as recited in claim 117 wherein said area is less than 10,000 $microns^2$.

119. The array as recited in claim 117 comprising more than 1000 groups of oligonucleotides of known sequences.

120. The array as recited in claim 117 made by the process of:

exposing a first region of said substrate to light to remove photoremovable groups from nucleic acids in said first region, and not exposing a second region of said surface to light;

covalently coupling a first nucleotide to said nucleic acids on said part of said substrate exposed to light, said first nucleotide covalently coupled to said photoremovable group;

exposing a part of said first region of said substrate to light, and not exposing another part of said first region of said substrate to light to remove said photoremovable groups;

covalently coupling a second nucleotide to said part of said first region exposed to light; and

repeating said steps of exposing said substrate to light and covalently coupling nucleotides until said more than 500 nucleotides are formed on said surface.

121. The array as recited in claim 117 comprising more than 10,000 groups of oligonucleotides of known sequences.